

Appl. No. : 09/844,155
Filed : April 27, 2001

REMARKS

Status of Claims

By this paper, Applicant presents Claims 1-4 for reconsideration and allowance.

Discussion of Rejection Under 35 USC §102(b)

The Examiner has rejected Claim 4 under 35 USC §102(b) as allegedly anticipated by JP 50072216. The Examiner contends that all Claim limitations are taught by JP 50072216. In particular, the Examiner contends JP '216 teaches an alloy having a tensile strength of approximately 590 MPa. Applicant respectfully contends that the reference does not teach this value of tensile stress.

Applicant reviewed what appears to be Examiner's notes on the JP '216 reference converting the value of tensile strength from units of kg/mm² to units of MPa. It appears the Examiner divided the tensile strength in kg/mm² by 0.117 to convert to units of MPa. However, Applicant respectfully believes that the correct conversion factor is 1/(9.8) or 0.102. Thus, 69 kg/mm² converts to a value of 676 MPa rather than 590 MPa as argued by the Examiner.

Claim 4 claims a copper alloy having a tensile stress of 400 MPa or more but 650 MPa or less. Applicant respectfully contends that JP '216 teaches an alloy having a tensile strength of 69 kg/mm². Applicant believes that this value of tensile strength is equivalent to 676 MPa, which is outside the range claimed in Claim 4.

Thus, Applicant respectfully requests reconsideration and allowance of Claim 4, because the cited reference fails to teach each and every claim limitation.

Discussion of Rejection Under 35 USC §103(a)

The Examiner has rejected Claims 1-3 under 35 USC §103(a) as allegedly unpatentable over JP 06150722 (JP '722) in view of JP 54023031 (JP '031). The Examiner alleges that JP '722 teaches the claimed Cu base alloys having the claimed electrical conductivity property. The Examiner also alleges that JP '031 teaches a similar Cu alloy having a tensile strength within the claimed range.

In order to establish a prima facie case of obviousness, the prior art reference, or references, must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981 (CCPA

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1974). Additionally, there must be some suggestion or motivation, either in the references themselves, in the nature of the problem being solved, or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Rouffet*, 149 F.3d 1350 (Fed. Cir. 1998). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art and not based on Applicants' disclosure. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

Applicant contends that the references neither teach all claim limitations nor suggest a motivation to modify or combine reference teachings in a manner that results in Applicant's claimed invention.

Claim 1 recites a copper alloy for an IC lead pin. The copper alloy is selected from a group consisting of (1) a copper alloy consisting of 0.05 to 0.5 wt% of Zn and 0.05 to 0.5 wt% of Mg, with the balance being made of unavoidable impurities and Cu; and (2) a copper alloy consisting of 0.1 to 1.0 wt% of Sn, with the balance being made of unavoidable impurities and Cu. Additionally, the copper alloy has conductivity of 50% IACS or more, and tensile stress of 400 MPa or more but 650 MPa or less.

JP '722 teaches copper alloys for use in "coils...for liquid fuel injection equipment." Para. [0001]. JP '722 teaches copper alloys (Table 1, samples 6 and 10) having compositions that overlap the compositions of Claim 1. However, JP '722 fails to teach or suggest copper alloys having the claimed tensile stress.

The Examiner argues that JP '031 teaches electrical conductivity and tensile stress for Cu based wire with various optional elements which overlap the Cu based alloy of JP '722. The Examiner also argues that the wire conductors disclosed in JP '031 require a tensile strength of at least 472 MPa. Thus, the Examiner concludes that the combination of references disclose all of the claimed features.

The tensile stress of *identical* alloy compositions may differ based on different manufacturing conditions. As stated in Applicant's specification: "Although the characteristics such as conductivity or tensile stress are mainly determined depending on alloy composition, they can be adjusted by selecting heat treatment conditions, such as intermediate annealing applied in mid course drawing." Specification, Page 6 ll. 12-17.

It is clear that JP '722 does not teach a Cu based alloy having the claimed tensile stress properties. In fact, JP '722 teaches a wire for a "coil for electromagnets of a motor-spirit injection valve." (JP '722 Para. [0010]). There is no discussion in JP '722 that a particular tensile stress is preferred or desirable. In fact, the tensile stress of a wire for a coil is typically low to allow the wire to be wound into the coil. This is contrary to Applicant's usage in which the tensile stress of the copper alloy "is set to 400 MPa or more but 650 MPa or less, because tensile stress of less than 400 MPa may damage a pin during IC assembling and using, and sufficient repeated bending property may not be obtained if the tensile stress exceeds 650 MPa." Specification page 4, ll. 5-9. Thus, not only does JP '722 not disclose a tensile stress range, but the very object of the invention of JP '722, to produce wire for a coil, teaches away from requiring the claimed tensile stress range.

Furthermore, JP '031 does not even disclose the claimed Cu alloy composition. The composition disclosed in JP '031 explicitly includes Ag 0.03-0.25 wt. %. Although JP '031 discloses many optional elements, Ag is not an optional element in the composition, but *must* be included in the alloy. In contrast, the alloys of Claim 1 *consist of* (1) Cu, Zn, and Mg or (2) Cu, and Sn. The "consisting of" transitional phrase explicitly excludes Ag except as an unavoidable impurity. In contrast, as described above, the alloy disclosed in JP '031 must include Ag in an amount of 0.03-0.25 wt. %. Thus, JP '031 does not disclose the claimed alloy composition.

It is not enough that JP '031 disclose a Cu alloy having a tensile stress within the claimed range. JP '031 fails to provide motivation to modify a Cu alloy having the claimed composition to include the tensile stress. Furthermore, JP '031 fails to provide any motivation to modify some other alloy composition to have the tensile stress property of 50 Kg/mm². JP '031 provides no motivation to either modify some other alloy to have the claimed tensile stress property, nor modify the disclosed Cu alloy to have the claimed composition.

Thus, JP '031 merely provides an example of a Cu alloy having a tensile stress that falls within the claimed range. However, Applicant does not claim just *any* alloy having the tensile stress properties, but rather, a specific alloy composition with the claimed electrical conductance and tensile stress properties. Furthermore, JP '722, by virtue of the object of the invention, teaches away from modifying the Cu alloy to have the claimed tensile stress properties.

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Therefore, Applicant respectfully requests reconsideration and allowance of Claims 1-3 because the references fail to teach an alloy having the claimed composition and properties. Furthermore, the references fail to provide any motivation to modify or combine the teachings in such a way that results in Applicant's claimed copper alloy.

CONCLUSION

Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. Accordingly, amendments to the claims for patentability purposes pursuant to 35 U.S.C. §§ 102 and 103, the reasons therefor, and arguments in support of the patentability of the pending claim set are presented above. In light of these amendments and remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested. Applicant submits that the claim limitations discussed above represent only illustrative distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.

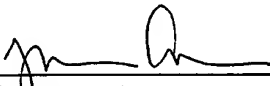
If there are any impediments to allowance of the claims that can be resolved with a telephone call, the Examiner is respectfully invited to call the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: 12/17/03

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